

Quiz 4 Evaluation Guidelines

i_b

assume $i_b \ll i_{IK}$

$$V_B = \frac{12V \cdot 1K}{6K} = 2V$$

$$V_B - V_{BE} = V_{50\Omega} = 2 - 1 = 1V$$

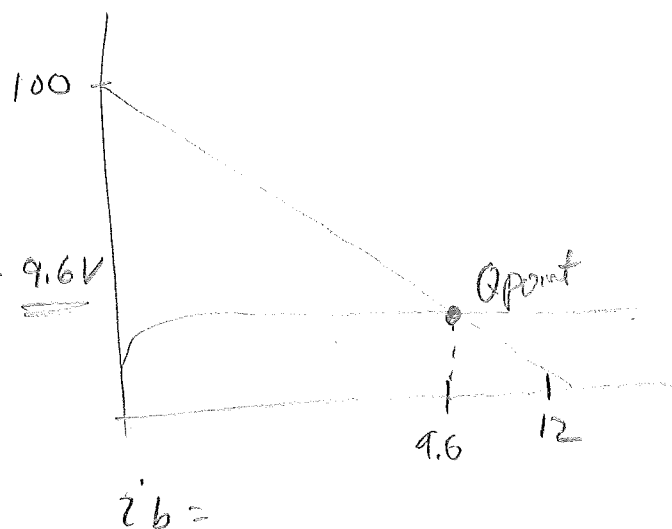
$$\frac{1V}{50\Omega} = 20mA = i_e$$

$$i_e \approx i_c \therefore i_c = 20mA$$

$$\beta_F = \frac{20mA}{0.1mA} \approx 200$$

$$V_{CE} = 12V - .02(70) - .02(50) = \underline{9.6V}$$

$$\text{when } V_{CE} = \phi \quad i_c = .1A$$



Points

Find V_B by assuming $i_b \ll i_{IK}$ (or equivalent) +2

Find i_e by $2 - 1 - .02(50) = 1V$ $1V/50\Omega = .02A$ +1

Know $\beta_F \approx 200$ +.1

Know $i_e \approx i_c$ +1

Know when $i_c = \phi$ $V_{CE} = 12V$ +1

Know when $V_{CE} = \phi$ $i_c = .1A$ +1

place Q point +1

Find i_B +.1

Find V_{CE} +1